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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/083,684

02/27/2002

Tomonari Yamamoto

020254

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38834

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04/21/2005

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EXAMINER

ERDEM, FAZLI

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/083,684

Applicant(s)

YAMAMOTO

Examiner

Fazli Erdem

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-10,12-14,16-19,21-23 and 25-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4,6-10,12-14,16-19,21-23,25 and 26 is/are allowed.
- 6) ☒ Claim(s) 27-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

1. Claims 1-4, 6-10, 12-14, 16-19, 21-23 25 and 26 allowed.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 27 and 28 rejected under 35 U.S.C. 103(a) as being unpatentable over Talwar et al. (6,380,04) in view of Guegan (5,705,410) further in view of Zolper et al. (6,083,781)

Regarding Claims 27 and 28, Talwar et al. disclose a high speed semiconductor transistor and selective absorption process forming same where in Fig. 1E, shallow source extension 60, shallow drain extension 62, deep source extension 80, deep drain extension 84 are formed under gate structure 36 and in single crystal 10. Source/drain extensions include dopants/impurities for amorphization. Talwar et al. fail to disclose the seeping of source/drain extension under the gate structure with the required capacitance value and the required gate/source capacitance. However, Guegan disclose method of producing a semiconductor with a highly doped zone situated between lightly doped zones for the manufacture of transistors where in Fig. 2, source/drain extensions are under the gate and the required capacitance value is disclosed in column 7. Furthermore, Zolper et al. disclose a method for manufacturing compound semiconductor field effect

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transistor with improved DC and high frequency performance where in paragraph 13, the required gate/source capacitance is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required seeping of source/drain under the gate with the required capacitance value and the required gate/source capacitance in Talwar et al. as taught by Guegan and Zolper et al. respectively, in order to have a semiconductor structure with increased performance.

4. Claims 29 and 30 rejected under 35 U.S.C. 103(a) as being unpatentable over Talwar et al. (6,380,04) in view of Guegan (5,705,410) further in view of Chou et al. (5,308,780) further in view of Zolper et al. (6,083,781)

Regarding Claims 29 and 30, Talwar et al. disclose a high speed semiconductor transistor and selective absorption process forming same where in Fig. 1E, shallow source extension 60, shallow drain extension 62, deep source extension 80, deep drain extension 84 are formed under gate structure 36 and in single crystal 10. Source/drain extensions include dopants/impurities for amorphization. Talwar et al. fail to disclose the seeping of source/drain extension under the gate structure, the required capacitance value, the required larger tilt angle on one of the source/drain sides and the required gate/source capacitance.. However, Guegan disclose method of producing a semiconductor with a highly doped zone situated between lightly doped zones for the manufacture of transistors where in Fig. 2, source/drain extensions are under the gate and the required capacitance value is disclosed in column 7. Furthermore, Chou et al. disclose surface counter-doped N-LDD for high hot carrier reliability where in Fig. 3, larger tilt angle on one of the

source/drain sides is disclosed. Finally, Zolper et al. disclose a method for manufacturing compound semiconductor field effect transistor with improved DC and high frequency performance where in paragraph 13, the required gate/source capacitance is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required seeping of source/drain under the gate, the required capacitance value, the required larger tilt angle on one of the source/drain sides and the required gate/source capacitance in Talwar et al. as taught by Guegan, Thou et al. and Zolper et al. respectively in order to have a semiconductor structure with increased performance.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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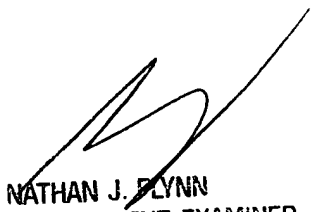
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fazli Erdem whose telephone number is (571) 272-1914. The examiner can normally be reached on M - F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FE

April 16, 2005



NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800